UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/530,884	08/29/2000	Robert N. McBurney	04585/048002	5126

21559 7590 01/30/2004

CLARK & ELBING LLP
101 FEDERAL STREET
BOSTON, MA 02110

EXAMINER	
BRANNOCK, MICHAEL T	
ART UNIT	PAPER NUMBER
1646	

DATE MAILED: 01/30/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/530,884	MCBURNEY ET AL.	
	Examiner	Art Unit	
	Michael Brannock	1646	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-6,8,10,11,22,23,27,35 and 36* is/are pending in the application.

4a) Of the above claim(s) *2-4,8,10,11 and 27* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1,5,6,22,23,35 and 36* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☑ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 9/25/03 10/23/00
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Status of Application: Claims and Amendments

Applicant is notified that the amendments put forth on 5/5/2000, have been entered in full.

Claims 2-4, 8, 10 11, 27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the response filed 3/8/03 and 10/20/03.

Applicant's election of the species of a neuregulin polypeptide consisting of the C/D' segment is acknowledged. Applicant asserts that claims 1-5, 6, 8, 10, 11, 22, 23, 27, 35 and 36 read on this species; however the examiner finds that claims 8, 10, 11, 27 do not read on this embodiment because it appears that each embodiment in these claims requires sequences in addition to the C/D' segment and thus could not be considered to "consist" of the C/D' segment.

In Applicant's response of 3/8/03, Applicant traverses the restriction requirement on the basis that the several different polypeptides share a special technical feature, i.e. they bind to specific receptors and protect against ischemia. This argument has been fully considered but not deemed persuasive. PCT Rules provide for examination of first named product (singular), method of making and method of using, 37 CFR 1.475. Further, although a search of any one of the peptides may overlap that of another, the search of one could not be relied upon, solely, to provide art that is anticipatory or would render obvious the invention of any other, and to search all would be burdensome. Therefore, the restriction is maintained and made final.

Additionally, in the response of 10/20/03, Applicant asserts that support for the elected species can be found in the specification. This argument has been fully considered but not deemed persuasive. The examiner can find no teaching in the specification that a polypeptide consisting of the C/D' could be used. Never-the-less, claims 1, 5, 6, 22, 23, 35, and 36 do read on such a polypeptide, although they do not explicitly recite it, and will be thus examined.

Raw Sequence Listing

Applicant is notified that certain corrections were made by the USPTO-STIC Systems Branch to Applicant's computer readable form of the raw sequence listing. Specifically, the amino acid numbering of SEQ ID NOs: 5, 8, and 48 was corrected. No action is required by Applicant in this regard.

Priority

Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119 as follows:

> An application in which the benefits of an earlier application are desired must contain a specific reference to the prior application(s) in the first sentence of the specification (37 CFR 1.78).

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: for example, Figure 1 contains parts A and B yet these are not referred to in the Brief Description of the Figures. A proposed drawing correction, corrected drawings, or amendment to the specification to add the

reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 22 is objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer to other claims in the alternative only. See MPEP § 608.01(n). Never-the-less, claim 22 is being examined in this Office action as though it were proper, i.e. as though it depended from any one of claims 1, 2, 3 and 4. Appropriate action is, however, required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1, 5, 6, 22, 23, 35, and 36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims require a "derivative of a neuregulin", yet neither the claims nor the specification set forth the amount of change or degree of derivation that is permitted and still be encompassed by the claims. Thus, an artisan cannot be reasonably appraised of the bounds of the claims.

Claims 1, 5, 6, 23, 35, and 36 require a "neuregulin". The recited term "neuregulin", without reference to a specific sequence identifier, is indefinite because the instant specification does not identify that material element or combination of elements which is unique to, and

therefore, definitive of "neuregulin". An artisan cannot determine what limitations are placed upon a claim by the presence of this term.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1, 5, 6, 22, 23, 35, and 36 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

The claims require methods of treating a mammal suffering from stroke comprising administering a neuregulin or derivative of neuregulin, yet the specification has failed to teach how to particularly administer a neuregulin or derivative of neuregulin to treat stroke and nor which particular neuregulin or derivative of neuregulin to use. The specification appears to contemplate the administration of the neuregulin via all routes known to medicine, e.g. subcutaneous, intramuscular, intravenous, intradermal, oral, rectal, nasal, vaginal optical (including buccal and sublingual) administration (page 14). This is not adequate guidance to enable an artisan to actually use a neuregulin to treat stroke. Specific not general guidance is required. Further, it is unclear why an artisan should expect that he or she would ever be able to find a way to treat stroke with a neuregulin. As set forth in the specification, neuregulins are known to be neurotrophic factors, but as admitted in the specification, many neurotrophic factors

are known in the art and have been available for decades, yet no effective pharmacotherapies are available for use in ischemia-induced brain injury (page1 bridging page 2).

The hope that one day someone will find a way to treat stroke with a neuregulin does not provide adequate guidance to enable someone to do it.

"Tossing out the mere germ of an idea does not constitute enabling disclosure... [R]easonable detail must be provided in order to enable members of the public to understand and carry out the invention." Genentech, Inc. v. Novo Nordisk Inc., 108 F.3d 1361, 1366, 42 U.S.P.Q.2d 1001, 1005 (Fed. Cir. 1997).

Furthermore, the claims encompass an essentially limitless or indecipherable number of neuregulin proteins, fragments and derivatives thereof. The specification presents a bewildering array of possible combinations of these fragments and derivatives to use in the invention (pages 7 and 8). This does not adequately teach an artisan which proteins to use. Instead, the specification simply invites the artisan to randomly go about making these proteins and to test them in expensive and time-consuming assays of ischemia to try to find proteins that will work (pages 16-20), if any can be found. Such an invitation for further research and investigation is unduly burdensome to the skilled artisan.

Due to the large quantity of experimentation necessary to generate the infinite number of variants required by the claims and screen same for activity, the lack of direction/guidance presented in the specification regarding which structural features are required in order to provide activity, the absence of working examples directed to same, the complex nature of the invention, the state of the prior art which establishes the difficulty in treating stroke, and the breadth of the claims which fail to recite any structural limitations, undue experimentation would be required of the skilled artisan to make and/or use the claimed invention.

Conclusion

No claims are allowable

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Brannock, Ph.D., whose telephone number is (571) 272-0869. The examiner can normally be reached on Mondays through Fridays from 10:00 a.m. to 4:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Yvonne Eyler, Ph.D., can be reached at (703) 308-6564 until January 22, 2003 and at (571) 272-0871 thereafter.

Official papers filed by fax should be directed to (703) 872-9306. Faxed draft or informal communications with the examiner should be directed to (703) 308-0294.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-0196.

MB

GARY KUNZ
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

January 22, 2004